

## A New Species of *Padus* (*Rosaceae–Prunoideae*) from Kyushu, Japan

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A new species of the genus *Padus* (*Rosaceae–Prunoideae*), *P. nakatakei* H. Ohba & Mas. Saito, from the Morotsuka area, Miyazaki Prefecture, Kyushu, Japan, is described. It is similar to *P. obtusata* (Koehne) T. T. Yu & T. C. Ku and *P. ssiori* (F. Schmidt) C. K. Schneid. *Padus obtusata* from China and Taiwan differs from *P. nakatakei* in having racemes with two leaves and leaves with crenulate margins. *Padus ssiori* differs in the leaves with a cordate base and glabrous pedicels 7–8 mm long.

**Key words:** Flora of Japan, new species, new taxon, *Padus nakatakei*, taxonomy.

Since the 1970s the flora of Miyazaki Prefecture, Kyushu, Japan, has been enthusiastically surveyed by members of Miyazaki-Shokubutsu-Kenkyūkai [Society for the Flora of Miyazaki] represented by Tadashi Minamitani. This paper describes a new species of *Padus* (*Rosaceae–Prunoideae*) discovered by Hidenori Nakatake in the Morotsuka area in the northwestern part of Miyazaki Prefecture. We name this *Padus nakatakei*. The epithet is dedicated to Mr. Nakatake, who was the first to find this species, and who has studied the local flora of Miyazaki Prefecture as a member of Miyazaki-Shokubutsu-Kenkyūkai.

Ku (1986) subdivided *Padus* into two sections and three series based on species from China. In our opinion, *Padus ssiori* (F. Schmidt) C. K. Schneid, *P. obtusata* (Koehne) T. T. Yu & T. C. Ku and this new species, *P. nakatakei*, belong to sect. *Padus* series *Padus* together with *P. grayana* (Maxim.) C. K. Schneid., *P.*

*racemosa* Gilib., *P. brunnescens* T. T. Yu & T. C. Ku, *P. brachypoda* (Batalin) C. K. Schneid., *P. velutina* (Batalin) C. K. Schneid., *P. integrifolia* T. T. Yu & T. C. Ku and *P. cornuta* (Wall. ex Royle) Carrière. *Padus nakatakei* is undoubtedly closest to both *P. ssiori* and *P. obtusata*. *Padus ssiori* occurs in Ussuri, Sakhalin, the Kuriles, Japan (Hokkaido to northern and central Honshu), and probably NE China (Ohba 2001), while *P. obtusata* ranges throughout nearly all of China (Yunnan to Jiangxi, Shaanxi and Shanxi) and Taiwan (Koehne 1913, Gu and Bartholomew 2003). Geographically, *Padus nakatakei* is completely isolated from the two species which it resembles.

*Padus nakatakei* is similar to *P. ssiori* in having glands near the apex of the petiole, the petiole 2–4 cm long, petals nearly as long as or shorter than the stamens, pedicels 3–8 mm long, and sepals caducous in fruit. It differs from *P. ssiori*, however, in having leaves with the

Table 1. Differences between *Padus ssiori*, *P. nakatakei* and *P. obtusata*

	<i>P. ssiori</i>	<i>P. nakatakei</i>	<i>P. obtusata</i>
Leaf blade	oblanceolate-elliptic, 7–15 × 3–7 cm	narrowly oblong or rarely oblanceolate-oblong, 7–11 × 2.8–4.9 cm	narrowly oblong, elliptic or obovate, 4.5–11 × 2–4.5 cm
Margin of blade	serrate with minute, aristate teeth	minutely serrulate with sparse, ascending, acute teeth	crenulate with rounded or obtuse, gland-tipped teeth
Apex of blade	cuspidate-acuminate	acute or often shortly cuspidate	acuminate, acute or rarely obtuse
Base of blade	cordate	truncate to rounded-cuneate	subrounded, widely cuneate, or rarely subcordate
Number of basal leaves of raceme	3–5	3 or 4	2
Pedice	7–8 mm long, glabrous	3–7 mm, with soft, white hairs	3–7 mm, with soft, brownish hairs
Stamens	as long as pistil	longer than pistil	nearly as long as or slightly longer than pistil

base rounded-cuneate to truncate and margins minutely serrulate, and the pedicels pilose.

In the position of the leaf glands and several other vegetative features *Padus nakatakei* approaches *P. obtusata*. The orbicular or widely ovate petals with a distinct claw, leaves with very minute serrations without glandular tips, and leaves with bright green adaxial surface, and more than three basal leaves in the racemes segregate it from *P. obtusata*. The differences found among the three species are summarized in Table 1.

In Japan, *Padus* has been represented by four well characterized species, *P. buergeriana* (Miq.) T. T. Yü, *P. grayana*, *P. racemosa*, and *P. ssiori* (Ohba 2001). From them *P. nakatakei* is clearly distinguishable by the combinations of several characters shown in the following key:

- A. Racemes basally leafless; sepals persistent in fruit .....  
..... *P. buergeriana* (Miq.) T. T. Yu & T. C. Ku
- A. Racemes basally leafy; sepal caducous in fruit
- B. Leaf gland at base of blade; petals shorter

than stamens .....

- ..... *P. grayana* (Maxim.) C. K. Schneid.
- B. Leaf gland at apex of petiole; petals slightly shorter or longer than stamens
- C. Petals longer than stamens; pedicel 1–1.3 cm long; petiole 1.7–2 cm long .....  
..... *P. racemosa* Gilib.
- C. Petals as long as or slightly shorter than stamens; pedicel 3–8 mm long; petiole 2–4 cm long
- D. Base of leaf blade cordate; pedicel glabrous, 7–8 mm long .....  
... *P. ssiori* (F. Schmidt) C. K. Schneid.
- D. Base of leaf blade truncate to rounded-cuneate; pedicel pilose, 3–7 mm long ..  
.... *P. nakatakei* H. Ohba & Mas. Saito

***Padus* [sect. *Padus* ser. *Padus*] *nakatakei***

H. Ohba & Mas. Saito, sp. nov. [Figs. 1–4]

Ex affinitate *Padi obtusati* (Koehne) T. T. Yu & T. C. Ku, ex chinensi formosae, petalis orbicularibus vel late ovatis distincte unguiculatis, foliis margine minutissimeque eglandulifer serrulatis, subtus vere viridibus, ramulis lateribus sub racemo foliis 3 vel 4 ornatis

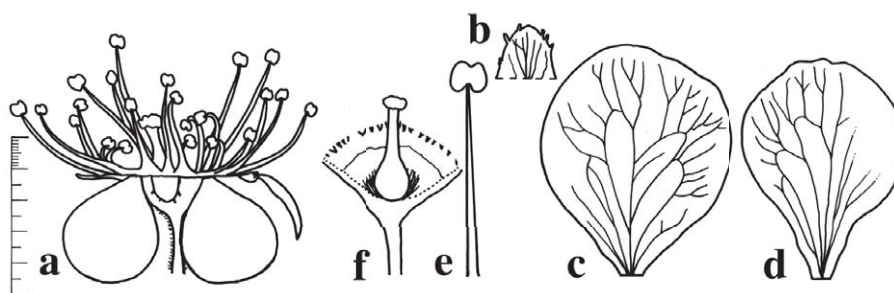


Fig. 1. Flower of *Padus nakatakei* H. Ohba & Mas. Saito (T. Minamitani s.n., 28 Apr. 2010, type). a. Flower. b. Sepal. c, d. Petals. e. Stamen. f. Pistil and hypanthium (longitudinal section). Scale indicates 5 mm for a and 2.5 mm for b–f.

vene diagnoscenda. Ex similitudine *Pado ssiori* (F. Schmidt) C. K. Schneid. lamina basi truncata vel rotundi cuneata non cordata et pedicello piloso nec glabro cito segregata.

**Type:** JAPAN. Kyushu, Miyazaki Prefecture, Higashi-Usuki-gun, Morotsuka-son (諸塚村), Nanatsuyama (七つ山), Ryôshiyabu (猟師藪), alt. 600 m. April 28, 2010. Tadashi Minamitani s.n. (TI-holo, iso; A, E, TNS-iso).

Japanese name: Morotsuka-uwamizu-sakura (nov.).

新和名: モロツカウワミズサクラ

Deciduous tree to 18 m tall. Trunk usually ascending, to 49 cm wide at breast height; bark blackish brown, rather smooth even in age. Branches grayish brown; branchlets elongate, slender, usually bent or horizontal, lenticels circular, spreading, isolated; hornotinous branchlets pale green or often deep purplish red. Leaves from annotinous branchlets petiolate; petiole deep reddish purple, shiny, 2–2.5 cm long, at first densely pilose, then glabrate; nectariferous gland on both sides near apex; blade herbaceous, narrowly oblong or rarely oblanceolate-oblong, 7–11 cm long, 2.8–4.9 cm wide, base truncate to rounded cuneate, margin minutely serrulate with sparse ascending acute-tipped teeth less than 0.2–0.4 mm long, apex acute or often shortly cuspidate; adaxial surface bright green, glabrous or nearly so, midvein and secondary veins prominent, apparently depressed; abaxial surface pale green, grayish

white when dried, midvein raised, prominent, lateral veins prominent, slightly raised except in marginal area, sparsely pilose along and on midvein. Leaves on inflorescence axis relatively small. Inflorescence a raceme, from axils of annotinous branchlets, basally with 3 or 4 leaves, leaves smaller than on vegetative branchlets, 17–26 cm long, with 40–55 flowers; axis pale green, straight, pilose with minute, white, soft hairs. Flowers without bracts, pedicellate, 6–9 mm wide; pedicel pale green, without reddish purple shading, 3–7 mm long, soft white pilose. Hypanthium widely cup-shaped, 1.9–2.4 mm wide, outer surface glabrous; inside brownish, with dense white hairs ca. 0.8 mm long around ovary. Sepals pale green, triangular-ovate, apex often clavate, 0.7–1 mm long and wide, ascending, then reflexed. Petals white, widely spreading, then reflexed, orbicular to widely obovate or widely oblong-obovate, 3–3.5 mm long and wide, base widely cuneate and short clawed, apex rounded or truncate or retuse. Stamens 20–30; filaments white, erect at flowering, variable in length, 2–4 mm long; anthers ca. 0.5 mm long, globose, ivory white. Pistil shorter than stamens, erect; stigma discoid, yellow; style ca. 1/4 as long as stamens, ca. 1.5 mm long; ovary ovoid, pale green, as long as style, glabrous. Drupe deep red, then blackish, globose or broadly ovoid-globose, 7–9 mm wide.

*Padus nakatakei* grows in thickets in an





Fig. 2. *Padus nakatakei* H. Ohba & Mas. Saito. A. Habitat on 29 Apr. 2010. B. Basal part of stem on 9 May 2011. C. Flowers and leaves on 29 Apr. 2006. All from the uppermost Obarai River area, Miyazaki Pref.



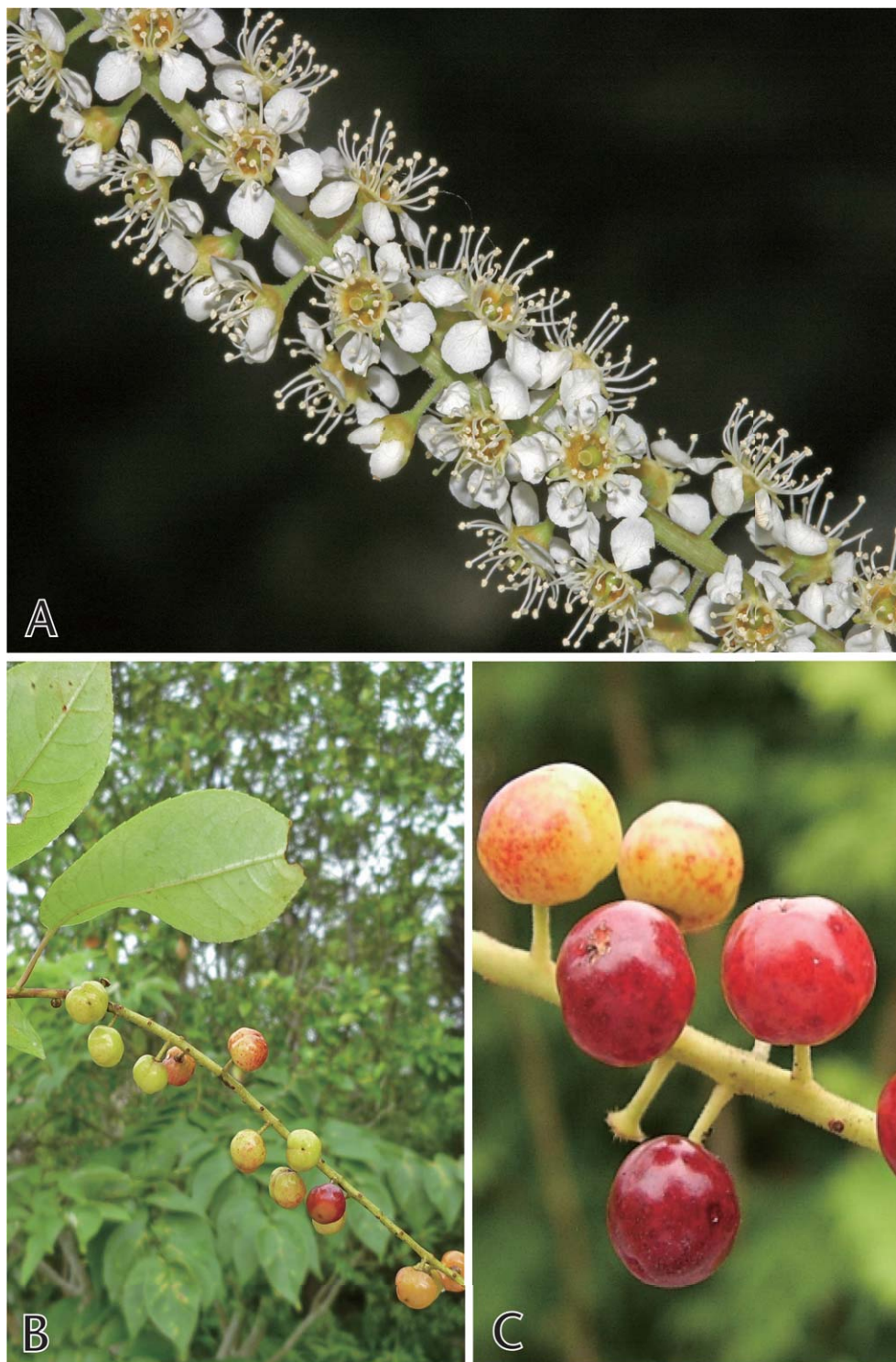


Fig. 3. *Padus nakatakei* H. Ohba & Mas. Saito. A. Flowers on 29 Apr. 2006. B. Fruits on 22 July 2011 (photo by Hidenori Nakatake). C. Fruits on 28 June 2009 (photo by Hidenori Nakatake).

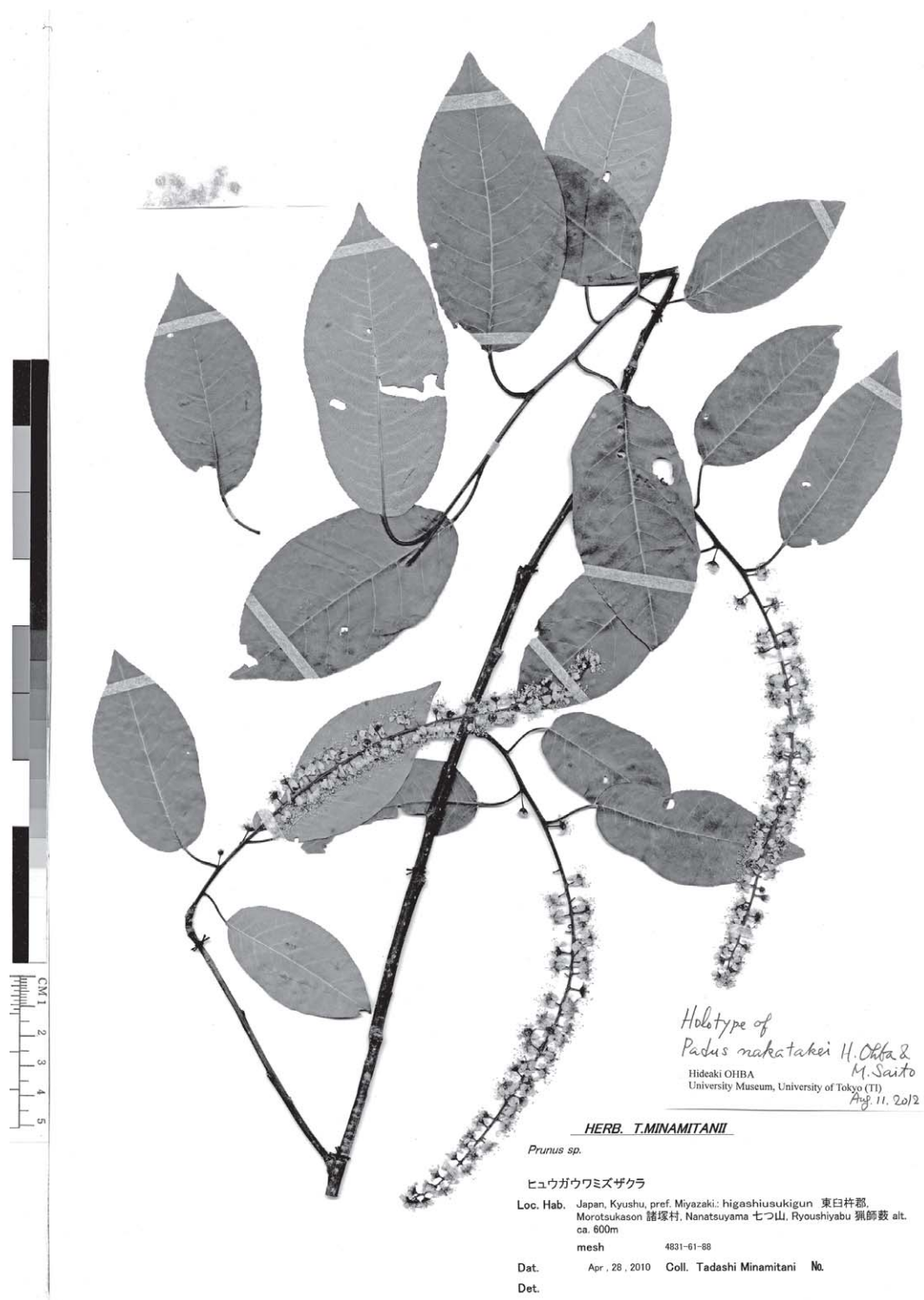


Fig. 4. Holotype of *Padus nakatakei* H. Ohba & Mas. Saito (T. Minamitani s.n., 28 Apr. 2010, TI).

extremely limited area between the Obarai-gawa and Tone-gawa. Both are branches of the Mimi-kawa (Mimi River) in the Morotsuka area in northwest Miyazaki Prefecture. The habitat is limited to slopes along streams in soils comprising a matrix of mud- and sand-stone mixed with basaltic volcanic stone, limestone and chert. *Padus nakatakei* grows with *Lindera praecox*, *Staphylea bumalda*, *Carpinus japonica*, *Acer carpinifolium*, *A. pictum* subsp. *dissectum*, and *Euptelea polyandra*.

According to observation made during field research in 2010 and 2011 (unpublished), 52 individuals of *Padus nakatakei* were found at elevations between 570 and 830 m. Among them, seven trees are greater than 10 m tall, and more than 10 trees are coppiced with more than three trunks arising from a stool. Nine of the 52 trees are less than 1.5 m tall, plus there are an uncountable number of smaller individuals. These are mostly reproduced from the trunks of fallen trees. The situation indicates that *Padus nakatakei* has been affected by both natural and human activities, such as erosion and the cutting of trunks and branches.

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大場秀章<sup>a</sup>, 斎藤政美<sup>b</sup>: 九州産ウワミズザクラ属 (バラ科) の1新種

宮崎県の植物相には未だ多くの未記載種が埋もれている。新種モロツカウワミズザクラ *Padus nakatakei* H. Ohba & Mas. Saito もその一つである。本種は北日本産のシウリザクラ *Padus ssiori* (F. Schmidt) C. K. Schneid. と中国・台湾産の *Padus obtusata* (Koehne) T. T. Yu & T. C. Ku に近似する。地理的には両種からは隔離し、形態上も前者からは葉の基部が心脚にならず切脚または円味をおびた楔脚であることと、小花柄は長

さが 3–7 mm で軟毛を生じる違いなどがある。後者 (*P. obtusata*) は花序の基部から出る葉が常に 2 枚で、葉にはやや目立つ円鋸歯があるなどの違いが認められる。

種の形容語 *nakatakei* は、宮崎植物研究会の会員で、このモロツカウワミズザクラの存在に最初に気付いた中武英則に献名したものである。

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